

# 1 Changing Connectivity and Digital Economies at Global Margins

Mark Graham

This book emerges in a moment of changing connectivity at the world's economic margins. In Manila, Manchester, Mogadishu, the banlieues of Marseille, and everywhere in between, the world is becoming digital, digitized, and digitally mediated at an astonishing pace. Most of the world's wealthy have long been digitally connected, but the world's poor and economically marginal have not been enrolled in digital networks until relatively recently. In only five years (2012–2017), over one billion people became new Internet users (ITU 2016). In 2017, Internet users became a majority of the world's population. The networking of humanity is thus no longer confined to a few economically prosperous parts of the world. For the first time in history, we are creating a truly global and accessible communication network.

As ever more people and places join this globe-spanning digital network, this book asks what digitalization and digital production can mean for the world's economic margins. Places that were once economic peripheries can potentially transcend their spatial, organizational, social, and political constraints. An Indian weaver, a Chinese merchant, and a Kenyan transcriber all have opportunities to instantly interact with markets outside their local contexts. In other words, possibilities now exist for fundamentally transformed economic geographies.

This book brings together new scholarship that addresses what increasing digital connectivity and the digitalization of the economy means for people and places at economic margins. As you read through the book, you might find it useful to think about the roles digital connectivity plays in transforming these economically peripheral areas: whether digital tools and technologies are simply amplifying existing inequalities, barriers, and constraints, or allowing them to be transcended; who is actually benefitting

from processes of digitalization and practices of digital engagement; who engages in digital production and where does it occur; whether changes in digital economies at the margins really match up to our expectations for change; and ultimately who are the winners and losers in our new digital and digitally mediated economies.

## Digital Economies

Digital technologies, and digitized modes of communication, have driven hugely transformative changes in the global economy. But most of the available evidence on digital economies remains focused on high-income economies, with relatively little known about the implications of the digital for those at the global margins.<sup>1</sup> And yet, optimism abounds about the potentials of digital economies to transform livelihoods in low-income countries. Commentators, policymakers, development organizations, and many others are increasingly promoting and funding plans and projects that aim to support or create digital economies. But without sustained and critical inquiry into how digital economies are being envisioned and enacted, as well as into the effects of digital economies in these countries, it is difficult to move beyond hype and hope. The diverse chapters of this book interrogate these increasingly digital economies in two ways. Instead of seeing the digital only as a discrete end product, we recognize how digital information, services, and goods are always embedded in, and part of, broader sociotechnical systems. No end product is therefore purely digital. We can thus think of the digital economy as producing outcomes on a spectrum. On one end of the spectrum, digital information is used to alter constellations of value creation and capture, by enhancing, complementing, or replacing economic transactions and processes that have traditionally been analog, a process called digitalization. This digitalization of goods, productions, and services is crucial to an ever-increasing amount of economic value creation. A growing body of research in economics, economic sociology, economic geography, and economic anthropology is pointing to the potential advantages that can be gained in global production networks through producing, capturing, manipulating, and moving all sorts of digital and digitized information.

On the other end of the spectrum, a key component of the end product or service might itself be digital or digitally transmittable (e.g., software

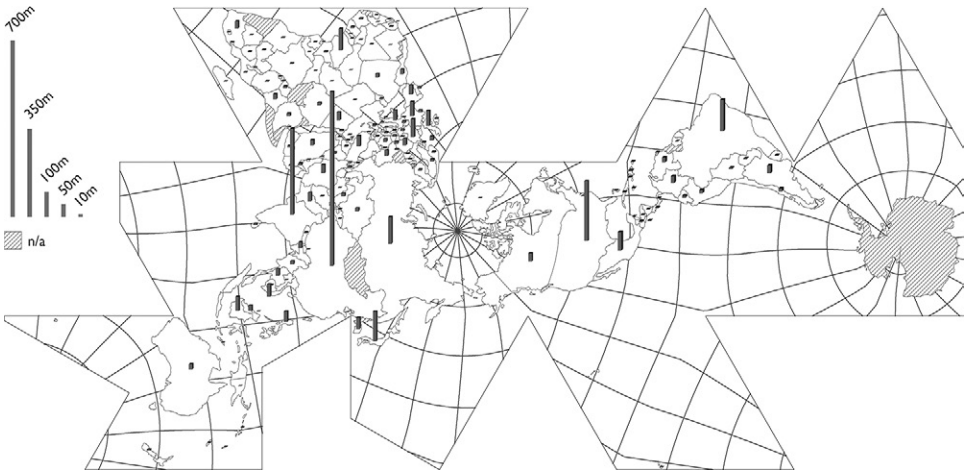
development, graphic design, writing and editing, etc.): what we refer to in this book as digital production. Places in every corner of the planet now aspire to become centers of digital production. Attempts to emulate the Silicon Valley model abound in places like the Silicon Glen, Silicon Savannah, Silicon Cape, Silicon Fjord, Silicon Roundabout, Silicon Prairie, and even the Silicon Swamp (Graham and Mann 2013). Meanwhile, alternative models of digital capitalism are emerging, from *jugaad* (innovative hacks) practices in India to *shanzhai* (copying) in China (Braybrooke and Jordan 2017). These two trends of proliferating digitalization and digital production form the twin pillars of newly emerging digital economies, raising questions for both digital enterprises and digital laborers about who controls, owns, and can access these new modes of economic production (Foster et al. 2017; Foster and Graham 2016; Weber 2017; Murphy and Carmody 2015).

Digital information, or data, is one of the fuels of the new economy (Kitchin 2014). Data is often cheap, nonrivalrous, and ubiquitous, which raises the question: In a global economy with world-spanning production networks, should the openness and transmittability of data be maximized, or should digital information be seen as a key resource in production processes that needs to be better protected and governed to avoid strengthening global cores at the expense of peripheries? (See Weber 2017 for a fuller treatment of these two questions.) Issues around whether trade in data is a positive-sum game, and who controls and benefits from new modes of digital and digitally enabled production, intersect with a need to better understand the digital connectivity mediating all this economic activity.

### Changing Connectivities

At the time this book went to press, the world had over three and a half billion Internet users and five billion mobile phone users (GSMA 2017). Ninety-five percent of the world's population live in a place that is covered by a mobile-cellular network, and 84 percent of people on the planet live somewhere covered by mobile broadband networks (ITU 2016).

As figure 1.1 illustrates, a majority of the world's Internet users now live in low- or middle-income countries. The Internet is no longer a network that connects just the Global North. Furthermore, most of the world's new



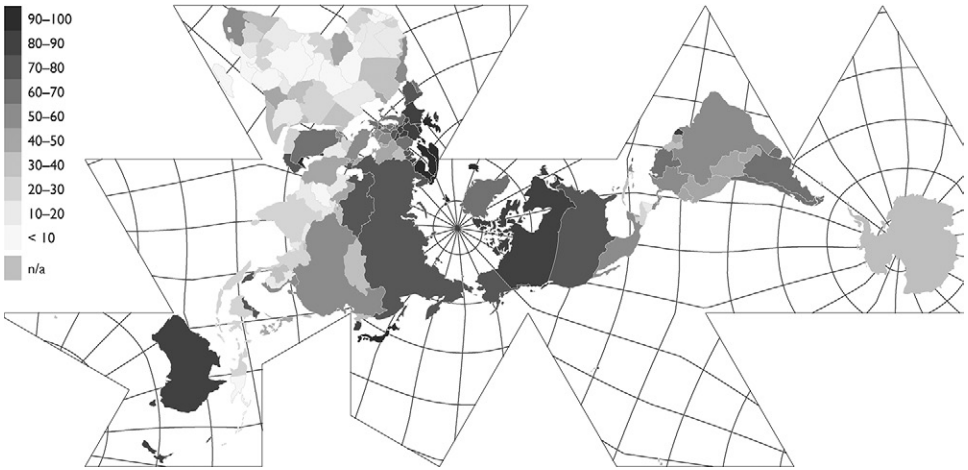
**Figure 1.1**

Total number of people with access to the Internet, 2015 (most recently available data at time of publication). Data sources: World Bank, Natural Earth. Visualization by Ralph Straumann, Geonet, <http://geonet.oii.ox.ac.uk/>.

growth in Internet users is coming from these low- and middle-income countries, in part because high-income countries have mostly reached saturation levels (see figure 1.2), and in part because access is increasingly possible through cheap mobile devices (Donner 2015).

As figure 1.3 shows, however, not all parts of the world with low Internet penetrations have high growth rates of Internet connectivity. There are still places with small Internet-using populations, low penetrations, and slow growth rates. These connectivity black spots have been the focus of several plans and programs, developed by governments, international organizations, and corporations, to connect the currently disconnected (Friederici, Ojanperä, and Graham 2017). Facebook, for instance, with its Internet.org partnership, aims to connect the planet. The company's website even explicitly clarifies that this means the whole world, not just some of us. It aims to do this through a combination of free apps (including Facebook) and unmanned aircraft that can deliver Internet access to remote areas.

Google has similar ambitions with its Project Loon, an initiative to use balloons floating through the stratosphere to provide Internet access to rural areas. Friederici and colleagues (2017) outline how such plans are not



**Figure 1.2**

Internet penetration percentages in 2015 (most recently available data at time of publication). Internet penetration is the proportion of individuals who have used the Internet in the last twelve months. Data sources: World Bank, Natural Earth. Visualization by Ralph Straumann, Geonet, <http://geonet.oii.ox.ac.uk/>.



**Figure 1.3**

Percentage growth in Internet penetration, 2010–2015. Data sources: World Bank, Natural Earth. Visualization by Ralph Straumann, Geonet, <http://geonet.oii.ox.ac.uk/>.

the sole preserve of digital corporate behemoths. The African Development Bank claims that US\$55 billion has been pledged for its Connect Africa initiative, and the World Bank has invested over a billion dollars in broadband infrastructure projects.

In all these plans, however, connecting people is not an end goal. It is a means to another end: fulfilling a vision of economic development sparked by increased digital access, helping the world's poorest in the process (Galperin and Fernanda Viacens 2017; Friederici, Ojanperä, and Graham 2017). But why do we think changing connectivity will make the poor less poor?

### Shifting Geographies

Elsewhere (Graham, Andersen, and Mann 2015; Graham 2015), I have argued that a key reason such visions exist is that digital technologies alter what Eric Sheppard (2002, 308) refers to as “positionalities,” that is, “the shifting, asymmetric, and path-dependent ways in which the futures of places depend on their interdependencies with other places.”

This is not to imply that visions of technologies altering positionalities are in any way new (Kern 2003). Technologies as varied as print, photography, and rail have been mechanisms to “annihilate time and space” (Solnit 2003, 4). The Victorians, for instance, were amazed by the potentials of the newly constructed telegraph system, which would allow people on different sides of the planet to instantaneously communicate with one another. Romance, crime, and of course new economic interactions blossomed on what Standage (1998) refers to as “the Victorian Internet.” A proposal in the mid-nineteenth century to connect cities on both sides of the Atlantic led one commentator to speculate that now “all of the inhabitants of the earth would be brought into one intellectual neighborhood, and be at the same time perfectly freed from those contaminations which might under other circumstances be received” (Marvin 1988, 201). In the early twentieth century, the rush by European powers to build roads and railways in their colonies was similarly framed as a move that would connect economic centers to margins and, in doing so, bring economic development and prosperity to those margins (Graham, Andersen, and Mann 2015).

The thesis that remote and inaccessible economic positionalities hinder the economic development of a region has been an ongoing narrative. Thinkers from Adam Smith (1776) to Jeffrey Sachs, Andrew Mellinger, and John Gallup (2001) all point to economic perils for places at the margins. As the Internet began to be globalized, and access reached today's economic peripheries, the hope cycle began anew. Newspaper stories appeared about African farmers or Asian weavers who were suddenly able to sell their products to the wider world (cf. Graham 2010; Kisambira 2009). National development plans such as Kenya's predicted that "by 2030, it will become impossible to refer to any region of our country as remote" (Government of Kenya 2007, 6). And presidents and prime ministers expressed visions of a newly digital world auguring new beginnings. For instance, Rwanda's president, Paul Kagame (2006, 5), famously noted:

Just as it is clear that growth in the 19th and 20th centuries was driven by networks of railways and highways, growth and development in the 21st century is being defined and driven by digital highways and ICT-led value-added services. In Africa, we have missed both the agricultural and industrial revolutions and in Rwanda we are determined to take full advantage of the digital revolution. This revolution is summed up by the fact that it no longer is of utmost importance where you are but rather what you can do—this is of great benefit to traditionally marginalized regions and geographically isolated populations.

Margins are defined as margins, after all, because they are not in a center. But if technologies can change positionalities by allowing us all to interconnect, irrespective of where we are, they can bring the margins to the center and the center to the margins. Information and communication technologies (ICTs), by changing geographies and topologies, offer the chance to change the world's economic positionalities.<sup>2</sup>

Nonetheless, because people have very different types of control over the modes and methods of connectivity, ICTs do not necessarily shrink distance or bring a digitally shared space into being. Seeing the world in those limited ways might not allow us to visualize what Doreen Massey (2005) refers to as "power-geometries"—an idea that "time-space compression for some may be time-space expansion for others" (Warf 2001, 11). Or, said differently, "ascribing new connectivities with associated economic and political change allows (and allowed) those forms of change to be ascribed an air of inevitability: a teleological trick that serves to depoliticize the very processes that technology, and the changing connectivities that it is thought

to enable, mediate” (Graham, Andersen, and Mann 2015, 345). Different places, in other words, all have their own emergent paths and will not necessarily follow the historical trajectories of anywhere else.

Digital enterprises, digital entrepreneurs, and digital workers from every corner of the world might all be able to connect using the same network, but this does not necessarily mean that they can all use it to alter their positionalities or level playing fields in the same ways, leading to a “thintegration” into global economies that does little to change positions of economic dependency (Carmody 2013). We therefore need to develop more nuanced, grounded, and historicized accounts of the mergings of technology and connectivity if we are to understand how they intersect with economic development.

### **Information and Communication Technologies for Development**

Much of the research that has been done on this topic has been conducted under the banner of information and communication technologies for development (ICT4D). The ICT4D literature has often engaged with this topic through a developmental lens, looking at how to design interventions to benefit the world’s poor. The term “development” itself comes with a lot of conceptual baggage and means very different things to different people. But, at its core, it always implies a focused intervention: a focus on transforming one thing into another.

Many of these interventions have traditionally had overtly economic purposes and have been exclusively concerned with economic growth (Unwin 2009). Gross domestic product (GDP), for instance, is often used as a proxy for understanding welfare or development. Yet GDP, as a measure of economic growth, does not necessarily tell us much about how well a nation is performing, developing, or increasing welfare. This is not to say that alternative orientations do not exist. Bhutan, for instance, has pioneered the measurement of gross national happiness (GNH) in place of gross domestic product (GDP) as a way of understanding welfare. Scholars from Amartya Sen (2001) to Dorothea Kleine (2013), while recognizing the usefulness of economic growth, have spoken of the need for a focus, in development, on freedoms for people to achieve their capabilities. Anita Gurumurthy (2011), relatedly, has pointed to the dangers of how ICTs have extended global spaces of power and contestation. She argues for explicitly



feminist visions of the network society that can better allow the potentials and dangers of digital transformations to be realized. As Buskens and Webb (2009, 5) note, “the use of ICTs to enhance one’s life presupposes a measure of control over one’s space and time”; therefore, pre-existing hierarchies (like gender hierarchies) can result in digital societies paying insufficient attention to the circumstances of women as those societies develop.

Also important to note is that development often fails even on its own terms. Perhaps because ICT4D is centered on technology as a central agent of change, it tends to focus on the effects of technology at the individual or organization level, rather than on structural characteristics and changes (an argument strongly made by Murphy and Carmody 2015). This myopic approach can lead to ICT4D plans and programs falling far short of their lofty ambitions. Echoing anthropologist James Ferguson’s (1994) famous question, “What do aid programs do besides fail to help poor people?,” we can ask what else ICT4D projects do.<sup>3</sup> Unwin (2017) argues that not only have ICTs increased inequality in the pursuit of development (see also Carmody 2012), but they have turned ICT4D on its head: “Instead of ‘ICTs for Development’ (ICT4D) we have become increasingly and surreptitiously enmeshed in a world of ‘Development for ICTs’ (D4ICT) where governments, the private sector, and civil society are all tending to use the idea of ‘development’ to promote their own ICT interests” (Unwin 2017, 9).

### Digital Economies at Global Margins

This book provides new empirical and theoretical raw material to help guide you through some of the above-mentioned debates. *Digital Economies at Global Margins* does not seek to take a singular position, but rather aims to bring together a diverse range of cutting-edge research to focus on the dynamic interplays between economic peripheries and the contemporary global and digital economy using both micro and macro levels of analysis. This framing enables us to arrive at explanations of how the local and global are mutually influencing, and are being influenced by, rapid changes in connectivity, the digitalization of economic activities, and digital production.

Legacies of economic imbalances and inequalities concerning capacity, power, and access to opportunities clearly persist, and they continue to

affect who partakes in and benefits from emerging digital economies at the world's economic margins. A repeated theme in this book is that the unevenness between economic cores and peripheries is rarely leveled by ICTs. At this moment of change, when so many look to connectivity to bring about sustainable, inclusive digital economic development, we need to bring together the voices of those who have thought carefully and critically about digital economies outside global centers. This book shows how those processes are inherently political, socially embedded, path dependent, highly uneven—and contested.

The book opens with seven introductory reflections from key voices who take divergent positions about the potentials of digital economies at the world's margins. This collection of opinions from economic and development thought leaders, who are themselves based variously in the public sector, the private sector, and academia, illustrates some of the diversity of positions on the topic.

We begin with Uwe Deichmann and Deepak Mishra from the World Bank. The authors of the *World Development Report 2016: Digital Dividends* argue that using digital technologies at global margins confers massive benefits but that those benefits are highly unevenly distributed. Bitange Ndemo, a professor at the University of Nairobi, follows with a piece that draws on his time as the former permanent secretary in Kenya's Ministry of Information and Communication. He points to some of the transformational powers of digital connectivity in East Africa and highlights how new technologies can help measure (and thus achieve) the United Nations' Sustainable Development Goals (SDGs).

Robert Pepper and Molly Jackman from Facebook's Global Connectivity division similarly emphasize opportunities for businesses and individuals brought about by greater connectivity, concluding with some concrete steps to achieve more inclusive connectivity. Returning to a focus on Africa, Calestous Juma, Harvard University's professor of the practice of international development, addresses some of the current policy-level issues surrounding industrial transformation in the technology sector. Jonathan Donner and Chris Locke from Caribou Digital address the significant power now wielded by platforms in the digital age. Platform companies shape much of what happens in the digital economy, and therefore understanding (and changing) digital economies relies on grasping the reach of these companies. Tim Unwin, professor emeritus of geography at Royal Holloway,

University of London, then offers a warning that digital technologies should be used by those who most need them—rather than by those who most need to justify more digital investment. Anita Gurumurthy closes the section with a warning about what she calls the “digital-financial” assemblage and concludes with a plea to reimagine how digital tools can be used for the well-being of all.

The book is then organized into two key sections. The first, “Digitalization at Global Margins,” explores how digitalization and increasing connectivity affect value creation in traditionally nondigital production networks. Economic actors at the margins in global production networks traditionally have limited direct access to inputs and markets. Ever more connectivity, however, could result in improved access to markets and new efficiencies in economic exchanges, ultimately leading to potentially greater impacts for smaller and more marginal producers.

In chapter 2, Christopher Foster, Mark Graham, and Timothy Mwolo Waema address some of these issues in the context of disintermediation in the East African tea sector. Using digital technologies to create more direct channels between buyers and sellers does not necessarily help tea growers, or even disintermediate production networks, as many predicted it would. Chapter 3, by Madlen Krone and Peter Dannenberg, in contrast, illustrates some of the risks of digital exclusion and marginalization. The chapter begins with a focus on how the ICT4D literature can highlight potential income gains to low-income communities. With a case study of commercial small-scale horticultural farmers in Kenya and Tanzania, the authors point to the risks of marginalization and long-term loss of commercial markets for those who lack access to new communication technologies. Chapter 4, by Hannah McCarrick and Dorothea Kleine, builds on the previous chapter by pointing out further risks—not of disconnectivity, but of connectivity itself. With case studies from Chile and Zambia, they show that by introducing distinctly neoliberal paradigms of development into the lives of women, ICT interventions may ultimately risk impoverishing them. Chapter 5 turns our attention to how, by focusing on emerging digital humanitarianism, digital tools are used to incorporate private sector logics into domains where they were previously less prominent. The author, Ryan Burns, shows how even humanitarianism is becoming a new site for capital accumulation. In chapter 6, Silvia Masiero also addresses the use of ICTs in active development interventions. Focusing on antipoverty

policies in India, she demonstrates some of the effects of ICT infrastructures on user entitlements. Jenna Burrell and Elisa Oreglia conclude the section in chapter 7 by pointing to the additional disconnect between overstated visions of ICT potentials and their actual effects on the ground. They use ethnographic research to challenge the oft-repeated notion that farmers using mobile phones to acquire market information can raise their incomes and participate positively in more efficient markets.

The second section, “Digital Production at Global Margins,” moves the book in a significantly different direction. Enhanced connectivity offers the potential for digital goods and services to be produced at the world’s economic margins, with newly connected people able to engage in work like software development and online freelancing, and to produce locally adapted digital content, services, and applications. This, in turn, affords new ways of creating and capturing economic value. This part of the book examines various types of digital production at different levels of analysis and across a wide range of geographies.

Chapter 8 begins with an examination of digital entrepreneurship and the rise of so-called innovation hubs in Africa. Nicolas Friederici shows that while development organizations have attempted to position innovation hubs as key infrastructures for Africa’s digital economy, many technology entrepreneurs have dismissed these hubs as ineffective interventions. Hackathons have always played an important part in digital entrepreneurship around the world, and chapter 9, by Lilly Irani, focuses specifically on what hackathons do at global economic margins. She shows that those invested in the Internet can make the hackathon format a global technology. Hackathons are a way of incorporating a world of diversity, but not necessarily without privileging certain stakeholders and outcomes over others. While the previous two chapters center on relatively high-skilled services in the digital economy, chapter 10 turns our attention to the other end of the spectrum with an analysis of what is referred to as “impact sourcing” (i.e., socially responsible outsourcing). Jorien Oprins and Niels Beerepoot show that impact sourcing brings digital jobs to new parts of the world but struggles to reach truly marginalized workers. In chapter 11, Mark Graham, Isis Hjorth, and Vili Lehdonvirta similarly focus on the lower-skilled and precarious end of the digital labor market. They illustrate that despite important and tangible benefits for a range of workers, multiple risks and

costs unduly affect the livelihoods of digital workers. Hernan Galperin and Catrihel Greppi, in chapter 12, also examine digital jobs that can, in theory, be done from anywhere. Using data from one of the world's largest online labor platforms, they show that even though much digital work can be done from anywhere, workers outside global economic cores can suffer from discrimination. They are less likely than their European counterparts to win contracts, even after a range of characteristics are accounted for. Jack Linchuan Qiu and Julie Yujie Chen argue, however, that being in an economic periphery is not always a disadvantage. In chapter 13, they use case studies of Chinese ride-hailing platforms and shanzhai mobile phone manufacturing to contend that digital innovation may allow cores and margins to shift and even reverse positions. Finally, chapter 14, by Stefan Ouma, Julian Stenmanns, and Julia Verne, problematizes one of the core questions of this book: that of connectivity. To lay the groundwork for a more progressive politics of connectivity, the authors unpack current articulations of how development thinking is wrapped together with thinking about connectivity.

The chapters of this book follow no single narrative about the positive or negative effects of digitalization and increased connectivity. The authors hail from five of the world's continents and bring with them a diverse range of findings and arguments. That diversity (and divergence) in stories, in many ways, is the purpose of this book. Overly simplistic narratives about the potentials of the digital to transform economically underdeveloped peoples and places have too often been casually repeated and reproduced.

As the chapters in this volume show, looking to standardize positive or negative effects of digital technologies is to unproductively fetishize the digital. Digital technologies are a diverse range of tools that have myriad uses in myriad contexts. The purpose of making this argument, however, is not to throw our hands in the air as a response to this sort of complexity. Nor is it a position of ambivalence or neutrality about the yawning gap between rich and poor in our digital age. It is instead a plea to look to the commonalities that we know actually exist. Instead of seeing "the digital" as a force that can drive economic outcomes in one way or another, we can deconstruct what the digital actually is. When talking about the digital, are we talking about the ability to compute, the ability to connect,

or something else entirely? Are we looking at mechanisms of information storage, transfer, or manipulation? Digital tools allow connections where previously none existed. They can form an important part of the underlying infrastructures needed to bring markets into being. They can augment physical processes with additional information. And they can facilitate both synchronous and asynchronous modes of communication.

The chapters in this book allow us to do just that—to look to the commonalities. Every chapter provides both a synthesis and an original contribution at the intersections of thinking about digital economies, digitalization, digital production, and global margins. By taking nuanced positions about the roles played by connectivity and digital technologies, the chapters point to some ways we can ask questions about who benefits and who doesn't from changes to the ownership of data in commodity chains, algorithmic governance in labor markets, or the availability of market price information. In other words, a focus on these underlying digital and digitally mediated mechanisms enables us to look for risks, costs, benefits, and opportunities in the context of changing positionalities.

This book does not offer definitive answers to all these questions. Instead, this volume shows that there are no straightforward answers. To echo Melvin Kranzberg's "laws of technology," ICTs are neither good nor bad; nor are they neutral. Digital tools are just that—tools—which can amplify intent. They can make the powerful more powerful and increase the reach of that power. But, in some cases, ICTs facilitate a story of convergence rather than divergence by offering opportunities to those at economic margins. We need to learn from those relatively untypical cases, asking not just who benefits and who doesn't, but also *why* they do or don't. Said differently, we need to move away from overprivileging technology and connectivity as primary agents of change, and instead focus on the forces using those tools as a medium. And we need that evidence to inform, challenge, and build new kinds of contemporary theories that can make sense of the networking of not just global cores, but also of the poorest people and places on our planet.

At some point in 2017, somebody (most likely from a low- or middle-income country) accessed the Internet and became the world's first person to connect to a global network that includes more than half of humanity. This signal that we are entering a world in which connectivity is the norm rather than the exception should lead us to redouble our efforts to

understand what digital connectivity and the digitalization of the economy mean for the economic geographies at the world's economic margins.

This should not be just an academic exercise. As this book shows, there is a significant disconnect between expectations about the potentials of digital economies in global margins and their actual effects. Many people are left out, marginalized, and even harmed by the shift to a more digital world. By deploying a diverse collection of empirical cases and building a broad range of theories, this book's authors help reset our expectations and develop more realistic visions of what is possible and probable. Together, the chapters in this volume lay the foundations for a more just and equitable digital world. And they provide an integral starting point for those of us who are keen not just to understand change at global margins, but also to participate constructively in it.

## Notes

1. Economic inequalities within countries can render traditional definitions of “developing” and “developed” economies an unproductive heuristic for understanding the uneven and complex global distribution of wealth and power. Instead of using “developing countries” as the book's object of focus, we focus instead on global margins—the people, places, and processes that have not been able to occupy central positions in transnational networks of production and value creation. This focus on “margins” allows us to question whether globally changing connectivities are reconfiguring or reinforcing existing balances of economic power.
2. Visions of altered positionalities have tended to manifest in two primary ways: first, as the idea that ICTs shrink relative distances, for instance, in the sense that the cost or time distances between Lagos and London have been shrunk; second, that the distance itself has ceased to matter, and the world has become a flat “global village” (Graham 2015).
3. See Easterly (2014) and Moyo (2009) for related arguments from economists.

## References

- Braybrooke, K., and T. Jordan. 2017. Genealogy, Culture and Technomyth: Decolonizing Western Information Technologies, from Open Source to the Maker Movement. *Digital Culture and Society* 3 (1): 25–46. doi:10.14361/dcs-2017-0103.
- Buskens, I., and A. Webb. 2009. *African Women and ICTs: Investigating Technology, Gender, and Empowerment*. London: Zed Books; Ottawa: IDRC.

Carmody, Pádraig. 2012. The Informationalization of Poverty in Africa? Mobile Phones and Economic Structure. *Information Technologies and International Development* 8 (3): 1–17.

Carmody, Pádraig. 2013. A Knowledge Economy or an Information Society in Africa? Thintegration and the Mobile Phone Revolution. *Information Technology for Development* 19 (1): 24–39.

Donner, Jonathan. 2015. *After Access: Inclusion, Development, and a More Mobile Internet*. Cambridge, MA: MIT Press.

Easterly, W. 2014. *The Tyranny of Experts*. New York: Basic Books.

Ferguson, James. 1994. The Anti-Politics Machine: Development, Depoliticization, and Bureaucratic Power in Lesotho. *Ecologist* 24 (5): 176–181.

Foster, Christopher, and Mark Graham. 2016. Reconsidering the Role of the Digital in Global Production Networks. *Global Networks* 17 (1): 68–88. doi:10.1111/glob.12142.

Foster, C., M. Graham, L. Mann, T. Waema, and N. Friederici. 2017. Digital Control in Value Chains: Challenges of Connectivity for East African Firms. *Economic Geography* 94 (1): 68–86.

Friederici, Nicolas, Sanna Ojanperä, and Mark Graham. 2017. The Impact of Connectivity in Africa: Grand Visions and the Mirage of Inclusive Digital Development. *Electronic Journal of Information Systems in Developing Countries* 79 (2): 1–20.

Galperin, Hernan, and M. Fernanda Vicens. 2017. Connected for Development? Theory and Evidence about the Impact of Internet Technologies on Poverty Alleviation. *Development Policy Review* 35 (3): 315–336. doi:10.1111/dpr.12210.

Government of Kenya. 2007. *Kenya Vision 2030: A Popular Version*. Nairobi: Government of Kenya.

Graham, Mark. 2010. Justifying Virtual Presence in the Thai Silk Industry: Links Between Data and Discourse. *Information Technologies and International Development* 6 (4): 57–70. <http://itidjournal.org/itid/article/view/642/277>.

Graham, Mark. 2015. Contradictory Connectivity: Spatial Imaginaries and Techno-mediated Positionalities in Kenya's Outsourcing Sector. *Environment and Planning A* 47 (4): 867–883. doi:10.1068/a140275p.

Graham, Mark, Casper Andersen, and Laura Mann. 2015. Geographical Imagination and Technological Connectivity in East Africa. *Transactions of the Institute of British Geographers* 40 (3): 334–349. doi:10.1111/tran.12076.

Graham, Mark, and Laura Mann. 2013. Imagining a Silicon Savannah? Technological and Conceptual Connectivity in Kenya's BPO and Software Development Sectors. *Electronic Journal of Information Systems in Developing Countries* 56 (2): 1–19.



- GSMA. 2017. *The Mobile Economy 2017*. London: GSMA. <http://www.gsma.com/mobileeconomy/>.
- Gurumurthy, Anita. 2011. Feminist Visions of the Network Society. *Development* 54 (4): 464–469. doi:10.1057/dev.2011.82.
- ITU. 2016. *ICT Facts and Figures 2016*. Geneva: ITU. <http://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2016.pdf>.
- Kagame, Paul. 2006. *The NICI-2010 Plan: An Integrated ICT-Led Socio-Economic Development Plan for Rwanda 2006–2010*. Kigali: Government of Rwanda.
- Kern, Stephen. 2003. *The Culture of Time and Space*. Cambridge, MA: Harvard University Press.
- Kisambira, E. 2009. East Africa: Seacom Fibre Optic Goes Regional. *East African Business Week*, July 25. <http://allafrica.com/stories/200907271215.html>.
- Kitchin, Rob. 2014. *The Data Revolution: Big Data, Open Data, Data Infrastructures and Their Consequences*. London: Sage.
- Kleine, Dorothea. 2013. *Technologies of Choice?: ICTs, Development, and the Capabilities Approach*. Cambridge, MA: MIT Press.
- Marvin, C. 1988. *When Old Technologies Were New: Thinking About Electric Communication in the Late Nineteenth Century*. New York: Oxford University Press.
- Massey, Doreen. 2005. *For Space*. London: Sage.
- Moyo, D. 2009. *Dead Aid: Why Aid Is Not Working and How There Is a Better Way for Africa*. New York: Farrar, Straus and Giroux.
- Murphy, James T., and Pádraig Carmody. 2015. *Africa's Information Revolution: Technical Regimes and Production Networks in South Africa and Tanzania*. Oxford: John Wiley and Sons.
- Sachs, J. D., Andrew D. Mellinger, and John Luke Gallup. 2001. The Geography of Poverty and Wealth. *Scientific American* 284 (3): 70–75.
- Sen, Amartya. 2001. *Development as Freedom*. Oxford: Oxford University Press.
- Sheppard, Eric. 2002. The Spaces and Times of Globalization: Place, Scale, Networks, and Positionality. *Economic Geography* 78 (3): 307–330.
- Smith, Adam. 1776. *An Inquiry into the Nature and Causes of the Wealth of Nations*. London: W. Strahan and T. Cadell.
- Solnit, R. 2003. *Motion Studies: Time, Space, and Eadweard Muybridge*. London: Bloomsbury.
- Standage, Tom. 1998. *The Victorian Internet: The Remarkable Story of the Telegraph and the Nineteenth Century's Online Pioneers*. London: Weidenfield and Nicolson.

Unwin, Tim. 2009. *ICT4D: Information and Communication Technology for Development*. Cambridge: Cambridge University Press.

Unwin, Tim. 2017. *Reclaiming ICT4D*. Oxford: Oxford University Press.

Warf, Barney. 2001. Segueways into Cyberspace: Multiple Geographies of the Digital Divide. *Environment and Planning B: Planning and Design* 28:3–19.

Weber, Steven. 2017. Data, Development, and Growth. *Business and Politics* 19 (3): 397–423. Previously published online April 17, 2017, 1–27. doi:10.1017/bap.2017.3.

This is a section of [doi:10.7551/mitpress/10890.001.0001](https://doi.org/10.7551/mitpress/10890.001.0001)

# Digital Economies at Global Margins

**Edited by: Mark Graham**

## **Citation:**

*Digital Economies at Global Margins*

**Edited by: Mark Graham**

**DOI: 10.7551/mitpress/10890.001.0001**

**ISBN (electronic): 9780262349482**

**Publisher: The MIT Press**

**Published: 2019**



**The MIT Press**

© 2019 Contributors

This work is licensed under a Creative Commons Attribution 4.0 (CC-BY 4.0) International License.



Published by the MIT Press. MIT Press books may be purchased at special quantity discounts for business or sales promotional use. For information, please email [special\\_sales@mitpress.mit.edu](mailto:special_sales@mitpress.mit.edu).

A copublication with  
International Development Research Centre  
PO Box 8500  
Ottawa, ON K1G 3H9  
Canada  
[www.idrc.ca/](http://www.idrc.ca/) [info@idrc.ca](mailto:info@idrc.ca)

The research presented in this publication was carried out with the financial assistance of Canada's International Development Research Centre. The views expressed herein do not necessarily represent those of IDRC or its Board of Governors.

ISBN 978-1-55250-600-4 (IDRC e-book)

This book was set in ITC Stone Sans Std and ITC Stone Serif Std by Toppan Best-set Premedia Limited. Printed and bound in the United States of America.

Library of Congress Cataloging-in-Publication Data

Names: Graham, Mark, 1980- editor.

Title: Digital economies at global margins / edited by Mark Graham.

Description: Cambridge, MA : MIT Press, [2018] | Includes bibliographical references and index.

Identifiers: LCCN 2018010198 | ISBN 9780262535892 (pbk. : alk. paper)

Subjects: LCSH: Small business--Technological innovations. | Electronic commerce. | Marginality, Social. | Social marketing.

Classification: LCC HD2341 .D54 2018 | DDC 384.309172/4--dc23 LC record available at <https://lcn.loc.gov/2018010198>

10 9 8 7 6 5 4 3 2 1